+3 CONTACT

The Monthly Magazine for The +3 Users' Group

ISSUE: 17

DTP Guide : Part 1

Using PCG's Wordmaster

EXTENDED MEMORY
Paul Wallace shows you
how to use it

GeneSis
Issue 6 available soon

Also in issue 17:

- **Childs Play reviewed,**
- **On-Line reviews Dr Scroll,**
- **Music Writer feature,**
- **Great mail order bargains,**
- **And much more!!**

SPECIAL DOUBLE ISSUE

HELPLINE GAMES ZONE CLASSIFIEDS

The Gaffer's Bit....

Welcome to a special double issue of +3 CONTACT. This massive 44 page issue constitutes both the December and January issues, and so issue 18 will be released mid-February. However, although this issue is double issue-sized, as far as your subscription is concerned in only counts as one issue.

This issue is the first to be designed from start to finish using our new DTP system. Mr Cleveland's insight into PCG's Wordmaster however, has been kept in its original form (as will the subsequent parts of our series of articles about PCG's Desktop Publishing Pack) just to show anybody who hasn't got a copy of the software to see what kind of output is possible.

May I also take this opportunity to wish you all a very merry Christmas and a very prosperous 1991. We are hoping that 1991 will herald another successful year for the +3UG. We have a number of things planned, which are discussed in some detail in the +3UG News column.

Members should also note that subscription rates to +3 Contact will rise on the 17th February 1991 to £12 (with the same price applying to re-subscriptions too), £16 for overseas. So if your subscription is due to end at (or just after) issue 18 (bearing in mind that that issue is being launced mid-February), then make sure to get your cheques/postal orders in the post so that they arrive here before 17th February 1991. Any received after this date will have the membership adjusted in line with the new rates.

See you in the New Year!

FEATURES

REGULARS

CREDITS

NEWS WATCH

DATEL COPYRIGHT STORM

Datel Electronics are running into a growing customer backlash after their decision to only allow people to buy their Plus D disc interface if they sign a form promising not to use it to pirate software.

The form which is being sent to customers upon receipt of their order informs them that if they do not sign the form and return it, that their orders will be destroyed and monies returned.

Many people have stated their disgust at Datel's policy and it is not hard to see why. All Datel needed to do to satisfy the conditions of the 1988 Copyright Act was to put a sentence such as 'this device must not be used to illegally copy software' in their adverts.

However, Datel's interpretation of the 1988 Copyright Act is very different to Romantic Robot who have been selling their Multiface devices since the introduction of the amended Copyright Act with a sentence similar to that above, and have not had any problems legally at all.

Although Datel must be congratualated for trying to cut out software piracy, surely this heavy handed approach will only dishearten customers and so dmage sales.

If Datel want to help eradicate software piracy then the best thing they can do is stop selling devices like their Action Replay for the Amiga/ST/IBM PC which is a software pirates ideal tool. In fact, several magazine publishers are making a stand and refusing to print advertisements promoting such devices.

If Datel are sending these forms out on the advice of 'professionals', then I think it is maybe time they changed lawyers.

SPECTRUM TO SAM TRANSFER INTERFACE

SAM Computers are developing an interface which will allow Spectrum users with SAM Coupés to achieve near perfect Spectrum compatibility. The interface will work on a similar principle to their earlier disc interface, the Plus D; whereby a 'magic' button is pressed and the whole of the Spectrum's memory in snapshotted to shadow RAM where, in the Plus D it was squirted to a disc drive whereas this new interface will squirt it straight to a SAM Coupé via the SAM network protocol.

Since the problem with Spectrum compatibility on the SAM has always been the great difficulty in getting games to load from cassette, this interface should solve this problem.

The project is still in the design stage and no release dates, etc have been announced.

Bulletin Board

We are well on the way to setting up a bulletin board supporting the entire range of Spectrums and SAM Coupé. The as yet unnamed BBS will operate from the +3UG HQ and will be accessible from any modem working at 1200/75 (V23), such as the VTX5000 (yet another reason to purchase one of these excellent modems before stocks run out). The BBS will almost certainly be a scrolling board, thus requiring one of the PD library programs such as Firescroll, or Dr.Scroll (reviewed on page 40). We aim to only support the Spectrum/SAM Coupé and so it will be of interest to all +3UG members.

I'll hopefully have more concrete news (opening dates, etc) in time for issue 18 so make sure you watch out for it.

PD Library

Thank you for all those members who observed the change of address of the PD library to its new address of: *GARNER DESIGNS, 57 Lovers Walk, Dunstable, Bedfordshire, LU5 4BG.*

Apologies to those who experienced a brief delay in receiving their PD discs, which was caused by the transition of the library to its new address. Everything is no 'business as usual' however.

New Membership Rates

Membership rates to the +3UG will rise on 17th February 1991 to £12 (for 12 issues of +3 Contact). This price will also apply to those existing members resubscribing. The rise in the number of overseas members has also meant that special overseas rates of £16 will also become effective as from 17th February 1991.

Those wishing to take advantage of the current rates had better resubscribe quickly. Please also note that you can resubscribe well before your current subscription finishes if you plan to stay for another year but want to take advantage of the current rates.

Any Ideas?

Have you got any ideas about how we could improve the service we provide? Would you like to see any more services? How could the existing ones be improved upon?

These questions and others will be asked in a members' survey which we are planning to hold in the next couple of months. Although we only carried a survey out a short while ago, we feel we have expanded enough to warrant a new survey.

This new survey will be aimed at the newer members and how we can improve the service upon their first impressions. The membership application form for prospective members will also include a questionnaire so that a continual survey can be maintained.

Your general comments are of course welcomed if you send us any correspondance while ordering goods, etc.

Our Plans for '91

+3 CONTACT will experience a major boost during the first quarter of 1991. This boost will be on two fronts. Firstly, the magazine will contain even more +3 related material than +3 Contact currently has; and secondly, the print quality of the magazine will be improved to a point were it can start to rival that of professional magazines. We've always been very aware that the quality of +3 Contact is what attracts the vast majority of new members. At a time when the +3 has been dropped by its manufacturer and the mainstream Spectrum magazines have forgotten it, organisations such as the +3UG need as many members as they can get and all the help they can get from any sources they can.

One major boost to us has been the support from EEC Ltd who have pledged to support the +3UG in all that we do. With support from companies with as good a reputation as EEC Ltd we can continue to provide the +3 with the support that Amstrad scandalously denied us by failing to market the +3 properly.

Despite the falling 'mainstream' interest in the +3, it is still one of the best 8-bit computer around for those people who want to do more than just play games. If Amstrad had of marketted the +3 promoting that feature as well as its games machine abilities, I think a great deal more would have been sold.

Our planned boost to the magazine will happen on issue 19 (or issue 20 at the latest) and although many may have reservations about its new look and 'new' role, our pledge to give Spectrum +3 users the most upto date information and +3 specific articles which avoid games like the plague is still uppermost in our minds. We promise not to let you down.

Daniel Garner.

With the arrival of Peter Naughton's *Childs Play*, Spectrum +3 users are spoilt for choice as far as music creation packages are concerned. However, Garry Rowland's *Music Writer*'s headstart and expandability potential may be the crucial factors in making it the victor in the battle of the music packages.

This article for the more technically minded user shows you how to customise *Music Writer* and also how to program utilities for it.

Music Writer

In a *Technotalk* special, *J.R.Cleveland* gets well and truly stuck into *Music Writer*, with a little shove in the right direction from *Garry Rowland*.

CONTROL DEVICE

In my review of Garry Rowland's *Music Writer* in +3 Contact issue 12, I indicated that the program lent itself best to control by mouse, i.e. the Genius mouse packaged with Artist II by Datel. This raises the obvious question of how to get mouse control as the load-up default rather than keyboard control. The answer is to make a Multiface 3 POKE at the "READY TO FORMAT" stage during the tape-to-disc transfer process. The address is 39920 (9BF0hex) and the value to be POKEd in is 5. The full list of values for this address is as follows -

1 - Keyboard
2 - Sinclair port 1
3 - Sinclair port 2
4 - Kempston joystick
5 - Datel/Genius Mouse

DRIVE B RECOGNITION

As reported first in issue 16 of +3 CONTACT, *Music Writer* has a problem recognising a drive B when fitted. Although the B icon appears in the files window, any attempt to CAT, LOAD or SAVE to drive B results in a *"Drive A: not ready"* message. The cure again lies in making some crafty POKEs at the "READY TO FORMAT" stage. This time I'll give the data in hex only (press H in the M3 toolkit to toggle between decimal and hex input modes) -
E326 = 16 42 18 13
E33B = 16 4D 3A 79 5B BA CA 34 A3 7A CD FD 99
E351 = 4F 00

(These POKEs can also be made when *Music Writer* is running, but in this case RAM page 1 (rather than RAM page 0) should be paged in). The relevant lines of the toolkit window should end up looking as shown in the box below, where the new values are shown in bold. Alternatively, existing *Music Writer* users can obtain a free replacement cassette from Mr. Rowland.

FAST LOAD

Most +3ers know by now that discs formatted with *HIFORMAT* (+3UG PD library no.98) give substantially reduced loading times, not to mention an extra 30K capacity per side. However, if you simply transfer the *MW* files to a HiFormatted disc, the disc won't boot because *MW* relies on a bootstrap sector written to the original disc when it is formatted. I have found the following solution to remove this problem - be warned - I am not the world's leading authority on boot sectors, and accept no responsibility for any ensuing catastrophes, however shattering. Follow these steps:

1. Copy the five *MW* files to a HiFormatted disc. 2. Load the *Bootsector Modifier Program* which is no. 4 in the +3UG PD library. 3. Insert the original *MW* disc, press any key to read the

boot sector, then REMOVE THE DISC. 4. Alter the values of bytes 2,3,8 and 9 to 42,10,12 and 22 respectively (thus restoring a HiFormatted disc's parameters). 5. Alter the checksum byte (no. 15) to 221 to make the disk bootable. By now the display should look as shown below. 6. Insert the HiFormatted disc and press 'S' to save your modified boot sector.

Music Writer will now boot from the LOADER menu in a celeritous 17 seconds instead of 29.

My thanks to Garry Rowland who supplied all the POKEs opposite

Bootsector modify program V1.0		
0	0	type
1	0	sidedness
2	42	tracks per side
3	10	sectors per track
4	2	sector size
5	1	reserved tracks
6	3	block size
7	2	directory blocks
8	12	gap read/write
9	22	gap length format
10	0	
11	0	
12	0	
13	0	
14	0	
15	221	Checksum byte

.MSC FILE FORMAT

Have you thought of a way you could improve Music Writer but didn't quite know how to go about it? This article shows you how Music Writer's .MSC files are composed, and using this information you can write programs that can load in .MSC files and alter them.

Garry Rowland, who supplied the +3UG with all the information below says, "A point was made of placing the .MSC file format in the public domain so that programmers could be certain that they could write programs that use Music Writer files without running into legal complications. Such programs could include the following: • Conversion programs that convert scores to BASIC music strings,
• Convert other music programs' scores to MW format,
• Utility programs that play or print .MSC files independently of Music Writer,
• Create music programs that are Music Writer compatible,
• To create .XTN programs that run on Music Writer."

The Music Writer .MSC file consists of a string of bars ending with a text header length byte, header marker byte and an optional header string of upto 250 bytes. An optional text string may also be included in each bar.

NUMBER OF BYTES   DESCRIPTION

NUMBER OF BYTES	DESCRIPTION
2	Offset to next bar (i.e. length)
1	Optional string flag (FFh)
1	Length of string
1-255	Bar string
1	Length of beat note
1	Number of beats per bar
1	Number of beats per minute
1	SGNFLG - flags signs used in bar:

BIT   DESCRIPTION
0	Segno
1	Fine
2	Dal Segno
3	Al Coda
4	Coda
5	D.S. Al Code/Fine
6	Auto beat on/off
7	"Repeat following bars"

| marker 1 | CBR counter and bar line flag: |

Bits 0-4 represent repeats 1-5
Bit 5 is spare
Bit 6 is "repeat previous bars" flag
Bit 7 is double barline flag

1	Number of notes/rests in part 1
1	Key Signature code for part 1
0-160	Part 1 notes
1	Number of notes/rests for part 2
1	Key Signature code for part 2
0-160	Part 2 notes
1	Number of notes/rests for part 3
1	Key Signature code for part 3
0-160	Part 3 notes

Each note is organised as follows:

| 1 | CHGHTE flags: |

BIT   DESCRIPTION
0	Natural
1	Flat
2	Sharp
3	Double sharp/flat
4	Tie to next note
5	Staccato
6	Crescendo

7	Diminuendo
1	TKNTE low nibble tokens, high nibble flag:

TOKEN	DESCRIPTION
1	Trill
2	Upper Mordent
3	Lower Mordent (inverted)
4	Inverted Turn
5	Turn
6	Accent
7	Glissando
8	Triplet

BIT	DESCRIPTION
4	1st note/rest of triplet
5	3rd note/rest of triplet
6	Spare
7	Note/rest flag

1	CMDNTE high nibble = voice number 0-9
	low nibble = volume 0-7
1	NOTEOD bits OOOOODDD
	O=Octave:multiple of 24 (0-72) logical AND F8h
	D = Degree 0-6 (7 if rest)
1	DURNTE length of note
	1 = Demisemiquaver
	32 = Semibreve

MUSIC WRITER News

Garry Rowland has announced new editions of his *Music Writer* package. The existing version will be replaced on January 31st 1991 by two new editions. These are the **Reference Edition** which is simply the old Music Writer with the UTILITY.XTN included. This will cost £25 + £2 p&p.

The **Muso's Edition** is identical to the Reference Edition, except that an A5 Icon Glossary booklet replaces the manual. It is intended for those who are already familiar with music notation. This will cost £15 + £2 p&p.

The Reference manual will also be available seperately for £10 to allow muso's to upgrade to the Reference edition later, should they not know as much about notation as they thought they did!

Further details can be obtained from:

G.Rowland, PO Box 49, Dagenham, RM9 5NY.

HELPLINE

This issue's Helpline column is just a reminded of how you can get in touch with the various Helplines which we run and how to help us to help you.

TELEPHONE HELPLINE

Our telephone Helpline is available on Wednesdays, Thursdays and Fridays from 2pm until 4.45pm and is run from Garner Designs, i.e. the telephone number is 0582 472067. You'll usually get straight through to Daniel Garner who'll be able to help those members with general questions. We are also now able to help you if you are having problems with particular programs (not games) on your +3. We are steadily accumulating as much commercial +3 software as we can, and we have of course the entire PD library at our immediate disposal. Therfore, if you can't figure out why you can't get a program working properly, then we should be able to help you. When you ring please make sure that you have all the relevent information in front of you and if you problem concerns usage of a program please try to ring while seated in front of your +3 with the program already loaded. This sort of thing helps us to answer your question in more detail and with more speed. Since the opening of the Helpline on Thursdays the strain on the system has lessened but sometimes we can get very busy. So if you get an engaged tone then please try again later.
Contact point - D.Garner, Tel: 0582 472067

POSTAL HELPLINE

Our postal Helpline service is run by Gary Stimson and is aimed at those users whose questions are more substantial. For example, you may have picked up a bare disc drive cheap at a computer show and you're not sure what the pins on the back do - in such a case, you could send a diagram of the pin connections and description of the drive, e.g. model, etc. The postal Helpline can also be used to indirectly help other members. For example, you can have handy and time-saving tips for using a particular program and by sending these to the Helpline they can be printed in +3 Contact and hopefully they will help another member. The most important thing to remember is that if you require a reply from the postal Helpline then you must enclosed a stamped self-addressed envelope.
Contact point - Gary Stimson, 4 Fox Covert Drive, Roade, Northants, NN7 2LL.

ON-LINE HELPLINE

When the on-line helpline was launched for a trial period earlier this year on a number of on-line services. Response to it only warranted the continuation of the service on Micronet/Prestel which attracts quite a few queries each day. The on-line Helpline can do the job of both the postal and the telephone helpline in that more substantial information can be provided so that we may help you more easily. We empty our Micronet/Prestel mailbox every day so on average we answer about 95% of all queries within 36 hours. However, if you send us the query just before we log-on to Micronet (or while we're on-line even) we'll deal with your query immediately - our fastest response so far has been about 5 minutes I think.

Contact point - Micronet/Prestel MBX 582472067

HOW TO CONTACT US

This page contains all the names, addresses and telephone numbers that you
need in order to use the various services that the +3UG provides.

- **GENERAL ENQUIRIES** • **PD LIBRARY**
- **HELPLINE**
- **MEMBRSHIP RENEWALS** • **GARNER DESIGNS**
- **MAIL ORDER SERVICE**
- **ARTICLE CONTRIBUTIONS**

Address: GARNER DESIGNS,
57 Lovers Walk,
Dunstable,
Beds,
LU5 4BG.
Telephone: (0582) 472067
Fax:(0582) 696114 (FAO: D.Garner)

• ON LINE HELPLINE

MICRONET - **MBX 582472067**   We try to answer all queries within 36
hours.

• TELEPHONE HELPLINE

Telephone: (0582) 472067   The Telephone Helpline is now open on
THURSDAYS as well as Wednesdays and Fridays, from 2pm until 4.45pm.

WIZARD ☆ ☆ ☆ ☆
☆ ☆ WORDMASTER
☆ ☆ ☆ ☆
☆ ☆ ☆ ☆ WHEEZES

by J R Cleveland

1 - THE SCREEN FONT
2 - PRINTING THE "£" SIGN
3 - THE "£" IN TYPELINER
4 - PRINTER POKES

5 - CURSOR SENSITIVITY
6 - AVOIDING ACCIDENTAL RE-BOOTS
7 - UPDATING THE MENUS
8 - IBM LINE GRAPHICS

═══════ WHEEZE No. 1 ═══════

Are you bored with Wordmaster's scrappy-looking screen-display font? Do you reach for the tranquilizers every time you press "£" only to be confronted by the unspeakable ` ? Then fret no more! A better font does exist, and it's to be found in Chezron Software's "Outlet" no. 23 (July 1989) (the very first Outlet on +3 disc) when it lives under the filename "MINICHRW". The diagram below shows all the characters of this new font, together with the original characters immediately beneath for comparison. The "£" sign occupies its rightful place, the "↑" sign has a shaft just as on the keyboard, and the whole character set looks sharper and smarter, especially the lower-case letters. (The difference is much more striking on-screen than on-paper.)

In order to incorporate the new font, proceed as follows -

1. Insert a copy of your Wordmaster disc in the drive.
2. Load Wordmaster in the usual way.
3. Return to Basic with symbol shift-E.
4. Insert the Outlet disc and LOAD "MINICHRW" CODE.
5. Re-enter Wordmaster with RUN.

You'll now see the FILE HANDLING menu displayed in the new font. Create a file and experiment for a while. If you decide you'd like to make this replacement permanent, then it only remains to -

6. Go back to the FILE HANDLING menu.
7. DELETE any files in memory.
8. Return to Basic again.
9. Re-SAVE "WM2" CODE 54174,11362.

```
! " # $ % ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? £
! " # $ % ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? ©

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ↑ _ £
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _ `

a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~
a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~
```

WHEEZE no. 2

Now for a prob that's as old as the earth, if not older - the conflict between "£" and "#", and the difficulty of printing the one you want. Most languages include characters which are not in the "standard" ASCII set and, in the case of English, the bogeyman is "£". In order to make their printers marketable in various countries, manufacturers therefore include "international character sets" (why do they call them "international" when they mean "national"?) to cater for these peculiar characters. Thus "#" in the "standard" set is replaced by "£" in the English set and by "₧" (the symbol for the peseta) in the Spanish set. These sets can be selected either by juggling the printer's DIP switches, or by issuing control codes from within software. Thus in Wordmaster, you would use the command line:

>L 27 82 n

where n is a number indicating the character set required (these numbers may vary from one printer to another and must be found from the manual). This facility allows you to select the English set when you want to print "£" and to jump back to the standard (or U.S.) set when you want to print "#". In either case you must press "#" on the keyboard.

"Yes, that's all very well," I hear you cry, "but wouldn't it be better to have both "£" and "#" in the same font, and cut out all this fiddling with different language sets". Well, your wish is granted! Most modern printers are provided with an "IBM character set" which does indeed contain both. The "#" occupies its normal place (code 35) while "£" has the code 156. Like the national sets, the IBM set can be selected either with a DIP switch or with software commands, but I prefer to use the DIP switch method since the IBM set is generally more useful to have as the default. (Note that although the IBM set does not itself contain italic characters, Wordmaster can still italicise the normal upright characters with the usual ☐ .)

So, how to tell Wordmaster about code 156? Easy! - make it a "user-definable character" (see page 16 of the manual), for instance by inserting the command line -

>def ☐ 156

at the head of the text. Then whenever you insert a ☐ in your text, you can be sure that a "£" will come out in print. Not exactly WYSIWYG, but a practical solution all the same, not to be sneezed at - or wheezed at!! It even allows you to print "£" and "#" in the same line of text.

WHEEZE no. 3

Having solved the "£" and "#" problems in Wordmaster, it remains only to do the same in Typeliner. The Typeliner fonts (including those on the Font Packs discs) have exactly the same problem as the original Wordmaster screen-display font as described on the previous page, though with the added twist that the printed character you get from pressing the "£" key varies from one font to another. In the Elite and Pica fonts you get a grave accent (`), but in most of the remainder you get an inverted apostrophe (').

The solution here lies in using one of the font editors (FONTED.EXE on the Typeliner disc, or FEDIT2.EXE on the Font Packs discs) to shift the characters around. The procedure is to locate the "£" sign in any font, press EDIT to place it in the editing grid, locate the ` (or ') character, check that the Spectrum "£" is displayed in the little cell to the left as illustrated below, and press "S" to save the "£" in the editing grid into the character position hitherto occupied by ` or '. Of course if you want to keep the ` or ' you must first of all shift this to another character position, for instance that occupied by the little-used " | " sign (typed with symbol shift-S).

How about "#" then? Unfortunately you just have to design your own - for instance by starting from "=", extending the horizontal strokes and adding vertical strokes, and then saving this in the character position originally occupied by "£". It's all rather tedious, especially as the fonts have to be edited one at a time, but the result is worthwhile - when you press "£" or "#" on the keyboard, you'll now see the correct character both on screen (thanks to Wheeze no. 1) and in print.
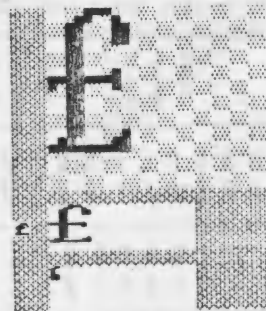
WHEEZE no. 4

It is by now well-known that to make some +3s "talk" to certain printers, notably the Star LC10 and the Citizen 120D, you need to -

POKE 23354,62: POKE 23355,16

But to make these POKEs work correctly in a program line, you may need to add a third namely -

POKE 23399,20

The listing below is part of my own customised Wordmaster loader which includes these POKEs in line 110. Lines 10-90 are unchanged, and the program is saved with -

SAVE "DISK" LINE 100

WHEEZE no. 5

Don't you find the cursor keys in Wordmaster rather jumpy and oversensitive? Then try the POKEs (supplied by PCG) in Line 120 below to bring them under control.

WHEEZE no. 6

The Wordmaster loader as supplied comes under the filename "WM" and so has to be loaded from within the +3 Basic editor. Most +3ers, I'm sure, rename it as "DISK" so as to have the convenience of loading it from the LOADER menu. But this has one nasty side effect in that whenever a DOS error occurs, for instance from a mistake in the filename, the system lands you back at the LOADER menu, and there is a great danger of accidentally re-booting Wordmaster and thereby losing all your work.

The solution lies in the subroutine in line 1001 below which contains machine code concealed in the REM statement to switch into the +3 Basic editor, and that's where you find yourself whenever DOS errors crop up. Naturally you cannot type this line in as shown - it has to be extracted from the DISK program of any of issues 27-34 of "Outlet" (+3 version).

WHEEZE no. 7

The +3 version of Wordmaster retains remnants of its 48K ancestry in the form of BASIC keywords in some of the menus. Thus, DRAW and REM each occur in the text editor and search/replace menus, AT and PLOT in the text editor menu, and SAVE in the blocks menu. Not terribly helpful as none of these keywords appears on the +3 keyboard. I recommend replacing them by something which indicates the actual keys to be pressed. For instance, I would replace "REM" by "ssE" (where "ss" stands for SYMBOL SHIFT), meaning "hold down SYMBOL SHIFT and tap E".

The amendments required are most easily made by loading Wordmaster in the usual way and entering the replacement text using the Multiface 3 toolkit, with the window display switched to text mode so you can see what you are doing. The table below shows a complete scheme of amendment, with the start address of each piece of old text, and the new text immediately beneath. The new text is entered by POKEing in the ASCII code of each character, and these codes may be found on pages 259-261 of the +3 manual.

Example - to replace [DRAW] by [ssW] in the editor menu, POKE 32,91,115 and 115 (decimal) into the four addresses starting from 62409. Note that the "[" of [DRAW] is overwritten by a space (code 32). Watch out for other characters which need to be overwritten by spaces, and for words such as "under" which need to be shifted along.

When all is done, return to Wordmaster and check that the menus are as you want them. If all is well, then save your work by repeating steps 6-9 of Wheeze no. 1.

60231) [DRAW] & 62409) [ssW]	60255) [REM] & 62424) [ssE]
62477 - [AT] under [PLOT] fast [ssI] under [ssQ] fast	
62649 - [SAVE] save block [S] save block	

```
100 CLEAR VAL "24498": FORMAT LPRINT "U": LOAD "WM1" CODE: LOAD "WM2" CODE
110 POKE 23354,62: POKE 23355,16: POKE 23399,20: REM LC10
120 POKE 64193,13: POKE 64194,24: POKE 64223,48: POKE 23561,15: REM cursor
130 GOSUB 1001: RUN
1001 RANDOMIZE USR VAL " PEEK 23637+256*PEEK 23638-8042": RETURN:
     REM poke+3          CODE
```

WHEEZE no. 8

The IBM character set, which I briefly mentioned in Wheeze no. 2, has a useful set of line graphics characters for drawing lines and boxes (single or double-walled). The four diagrams opposite are a key to these characters as implemented on the Star LC10 printer, and the diagram below is a simple example of how to invoke them as "user-definable characters" (see page 16 of the Wordmaster manual) to create a single-walled box with some text inside. Note that the >L 27 116 1 command line, which selects the IBM character set, can be omitted if this is already selected by DIP switch as I recommended earlier. For a more complex and instructive example, study "demo_4" in the "DEMO" file on your original Wordmaster disc. (You'll have to change the codes of the user-definable characters, but you can forget the advice to change the line-spacing to 8/72" in the print menu since IBM graphics print out a treat at the default 12/72".)

Wordmaster allows you to have only seven user-definable characters at any one time, but this not much of a restriction since you can redefine your characters as often as you like throughout the document. This gives you the power to produce boxes, tables and flow-charts of almost unlimited complexity, and in any number you like - you're not limited to 24 lines/boxes as in Typeliner. Lastly, don't forget you can make things double or quadruple size with the appropriate control codes.

```
>FILE .BOX_DEMO
>reset
>L 27 116 1
>def ┌ 218
>def ─ 196
>def ┐ 191
>def │ 179
>def └ 192
>def ┘ 217↵
↵
┌──────────────────┐↵
│                  │↵
│     This is      │↵
│   an example     │↵
│                  │↵
└──────────────────┘↵
```

GENESIS

Where else can you find a magazine on a disc containing reviews, news, hints, tips and over 100K of top quality programs for as little as £2.25?

Issue 6 of GENESIS is here and after the success of the previous issues, we're going from strength to strength and with the inclusion of a complete implementation of the FORTH language coming on issue 6's disc we're sure that this issue will be the best yet. Unlike other tape/disc magazines which provide free programs, GENESIS comes with the GENESIS GUIDE which is an A4-sized guide to using the disc magazine itself and all the programs on the disc. Issue 6's Genesis Guide also contains a large section about the Forth language to get you started with our Forth program.

As well as the free programs we have included in issue 6, the magazine sections contains the following articles:

* All the latest Spectrum/SAM Coupe news and views,
* Program reviews,
* Language Tutorials - our in-depth Pascal tutorial continues, and our great Forth tutorial starts,
* And of course, much much more!

GENESIS Issue 6 is available January 10th 1991.

PRICE: £4.25
Or £2.25 if you supply a blank 3" disc

Please make cheques/PO payable to "NEW ASPECTS" and sen to: 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

EARN UPTO £100

We aim to provde everyone who buys GENESIS with not only the best disc magazine available, but also the very best programs around. To help us to achieve the latter aim, we need you to contribute your programs for inclusion on future issues of GENESIS. They must be your own work and you can elect to have them included as public domain software or as copyright protected software. As an incentive, we are offering £100 of prize money each issue which is split between the authors of all the programs which are chosen for inclusion. The £100 is split up according to how good your program(s) is in comparision to others in the same issue - so the bigger and better your program is, the more you get paid for it! More information can be found in the Genesis Guide.

SHOW REPORT

COMPUTER SHOPPER SHOW

A cold December morning marked the opening of the 1990 Computer Shopper Show at Wembley Conference Centre in London. After the chaos caused by huge crowds at the 1989 show at Alexandria Palace, the size of Wembley's Conference Centre and Exhibition Hall proved to be the factor that made this show much more enjoyable than the last.

The show was split into three main areas which were spread out quite nicely. However, of the nearly 300 comapnies attending, the support for the Spectrum was very low indeed. The organisers, Blenheim Database, issued a press release to the +3UG before the show claiming 'unparalleled Spectrum support'. This simply was not true - massively untrue. The show was okay for those seeking to purchase printers, etc, but those who wan't direct Spectrum support from companies would've been very disappointed. Even the official show guide which showed users of each computer which stands would be of interest to them, stated that only 5 stands would be of interest to Spectrum users.

However, moans aside, EEC Ltd were at the show and were selling MGT's Lifetime Drive and other Spectrum hardware such as Interface 1 and Microdrives. Apart from the Lifetime drive, the hardware highlight of the show was Star's new LC200 colour printer. A number of companies were selling this printer (all at reduced prices) and by all accounts it was selling very well. The LC200 is the big brother of Star's best-selling LC10 printer and has several advanced features which have not before been included on 9-pin printers. The Star LC200-24 printer was also on show, this being an advanced 24-pin version of the LC200.

If you were after cheap games, you would have been disappointed too, with the majority of 'box shifters' only selling 16-bit titles in preference to the relatively low-selling Spectrum titles.

However, if you have more than one computer then The Computer Show was an excellent show and the coverage of the Acorn Archimedes was a pleasure to see. Sadly however, I was very disappointed at the lack of Spectrum supporting stands. I just hope that the next Computer Shopper Show from May 10th-12th 1991 is an improvement.

Once loaded, a colourful and intuitive main selection screen appears from which all of Childs Play's features can be accessed. Down the right hand side of the screen are icons representing all the various values of notes, along with the PLAY icon which allows compositions to be heard.

Down the left hand side of the screen are various icons representing the following: sharp note, flat note, natural note, page, set repeat lines, tied note, key signature, bar measure, triple notes, time signature, note eraser, dotted note, rests, and the extras option. In the centre of the main selection screen are helpful notation references for you to use. The brief A6 manual helps out when this is not enough though.

These icons can be selected by using the cursor keys place a small cursor over a box next to the required icon and

Childs Play

Into the ring steps Peter Naughton with *Childs Play* to do battle with Garry Rowland's *Music Writer.*

pressing ENTER. Although this selection method is a good idea in theory, in practice it is quite hard to use and the ENTER key has to be held down for longer than you would normally expect in order for an icon to be selected. Selecting one of the notes on the right of the screen results in the music staves to being display along with a vertical line on the top stave which can be moved with the cursor keys to allow you to position a note. Once ENTER has been pressed, you are prompted to enter the note name, e.g. A,c,g,E, etc. Once you have done this a note is drawn on

the stave where you placed the vertical line. You can continue to place notes of the same value until you need to place a different value note, whereupon pressing SPACE will return you to the main selection screen.

Unlike Music Writer, Childs Play has a slightly antique way of erasing unwanted notes from the stave. Firstly, you must select the note eraser icon which erases the note from memory. However, it does not physically remove the note graphic from the stave. You must do this by using the cursor keys to move a cursor and by pressing ENTER the area under the cursor is

'rubbed-out'. This seems a rather strange way of doing things as Childs Play does not check to see if you have actually erased the correct note from the stave screen.

Childs Play recognises all the key signatures you are likely to use, and suitably places sharp and flat symbols on your stave to remind you. Placing sharps, flats and naturals onto your last note is all automated and all you have to do is to select the icon and Childs Play places the appropriate symbol next to the last note placed.

Playing the music presented a few problems at first. After entering a few notes on the stave I decided to see what they sounded like, so I selected the PLAY icon and after the stave had been displayed on the screen I got a rather disheartening error message. This slight bug only appears when your composition consists of a very few notes and can be got around by changing the beginning of line 2881 to read: IF LEN Q$>10 THEN IF Q$(10)="!" AND .....

However, when Childs Play does play your music, its does so accurately and

nicely. Whereas music can be replayed in 3 channels via the +3's sound chip, Childs Play also outputs sound in 4 channels to a MIDI synth thus allowing you to hear the full benefits of your music - benefits that the +3's sound chip problem does not allow.

Other miscellanous options include the Page option which allows the music stave to be viewed from the main selection screen, and the Extras option which allows you to do the following things: print page, save page, play

music (at different tempi), save music and examine string/erase bar. The final option allows you to examine and directly alter the strings which Childs Play use to store your music's data.

Also included on side B of the Childs Play disc is a utility which allows you to play your compositions outside of the Childs Play program. Two demo tunes are included which show Childs Play in action. Ths utility also allows you to display the stave whilst the music is playing which

REFER TO ABOVE FOR CORRECT LOCATION OF NOTES.

© 1990

VOICE SELECTION AVAILABLE

VOICE1

1..slow

2..med slow

3..normal tempo

4..med fast

5..fast

SELECT TEMPO REQUIRED

example of 4 voices on staves. note triplates and rep...

note repeat sign on 2 bar,and repeat on last bar.Tie on i...

note use of joining double notes.Also the inclusion of rests

allows you to follow a piece of music while it is being played. When each page of the music has been played the next is displayed and the music on that page played. This process of switching music pages causes a slight (but noticeable) delay when listening to the music.

Slight niggles such as these are mainly due to the program being written in BASIC. While this is just about okay within the main Childs Play program, in time critical processes such as replaying music, its limitations can be seen.

Although Childs Play, as it stands at present, is a good program, I think it should be viewed as a prototype for future versions which I hope Peter Naughton will continue with because with a bit of tweaking in places and the use of machine code in some, if not all places, then Childs Play could become a very good program.

Childs Play is a good piece of software which will appeal to those

people who can't afford the price of the superior Music Writer. It will also appeal to those wanting to play sounds via a MIDI synth, and Childs Play's ability to do this is a positive buying point. However, Music Writer's sheer wealth of features and esay to use operation wins the day of Childs Play, but priced at £8 Childs Play has already made itself a niche.

Childs Play normally costs £8, but +3UG members can obtain it for £7 by sending part of, or a photcopy of, a recent copy of +3 Contact as proof of membership). MIDI leads to link your +3 to a MIDI synth are also available for £7.50 from P.Naughton, or £6 if one is ordered with Childs Play.

Childs Play is available from:
P.Naughton,
2 The Gills,
Otley,
Leeds,
LS21 2AH

MIDI synths can be purchased from any

musicians suppliers or alternatively the +3UG's mail order service (courtesy of New Aspects) can supply an excellent budget MIDI synth for use with Childs Play.

The synth is a Casio MT240 MIDI keyboard which features 19 instruments, 20 rhythms, and a whole host of other features. The universal compatibility of MIDI means that the Casio MT240 will plug straight into your +3 via Peter Naughton's MIDI lead and will be instantly usable with Childs Play.

The Casio MT240 MIDI keyboard normally retails for £89.95, but if you order it from us at New Aspects we can supply it for only £82.99 + £1.50 P&P.

We can also obtain the full range of Casio keyboards from the smallest to the largest. Please phone with your requirements and we will be more than pleased to deal with your order. Our telephone number is (0582) 472067.

```
2....G major ....F sharp

3....D major.....F,C sharp

4....A major.....F,C,G sharp

5....E major.....F,C,G,D sharp

6....B major...F,C,G,D,A sharp

7....F# major..F,C,G,D,A,E sharp

8....F major....B flat

9....Bb major....B,E flat

10....Eb major....B,E,A flat

11....Ab major....B,E,A,D flat

12....Db major...B,E,A,D,G flat
1....C major no sharps or flats
```

CLASSIFIEDS

HOW TO PLACE AN ADVERT IN +3 CONTACT

To place a classified advertisement in +3 CONTACT just send us your requirements on a plain sheet of paper and we'll print it in the next available issue. If you have a +3 related item to sell then +3 Contact is the obvious place to try to sell it with a guaranteed monthly readership of more than 600 Spectrum +3 owning people.

Adverts advertising or promoting software piracy will be flatly refused publication as the +3UG do not condone illegal copying of software. We reserve the right to refuse to print, or alter the contents of an advert where we see fit.

MAIL ORDER

TASWORD +3

The ultimate word processor for the Spectrum +3. A mass of features are included, such as 60K document length, full text formatting, 64 character display, full print out options, data merge, and built-in help facility. A must for all +3 users.

Description	RRP	Our price
Tasword +3	£24.99	£18.99

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This spreadsheet program has hundreds of uses, from accounting for small businesses to home accounts and such like. A whole wealth of features are included, such as statistical graph output and a massive 64K data capacity.

Description	RRP	Our price
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DUST COVER

Keep your Spectrum +3 clean and safe in this smart high quality dust cover. Make your +3 a "dust free zone".

Description	RRP	Our price
Dust Cover	£5.99	£4.90

MAGNUM Light Gun

The OFFICIAL Spectrum lightgun, as recommended by AMSTRAD. Just point the gun at the screen and shoot! Comes with 6 great lightgun-compatible games.

Description	RRP	Our price
Lightgun +3	£29.99	£23.00

Spectrum +3 Power Supply Unit - £25.00
Box 10 Maxell/Amsoft 3" discs - £21.61
Mouse Mat (Red/Blue) - £5.99
Mouse Holder - £2.99
TV to Computer Ariel Lead - £2.75
MINI OFFICE - £2.99

All current games available on disc and tape. Full price games all at our standard 10% discount from the RRP. Budget games are as follows: £2.99 games cost £2.49 and £3.99 games cost £3.45.

As well as recent software, we can obtain copies of most older games. Please telephone us first with your requirements and we will do our best to track a copy down for you.

MAIL ORDER

VTX5000

The VTX5000 is still, after many years, *the* Spectrum modem. Its simple 'plug in and go' features mean that it can be used easily by absolutely anyone. The world of modem communications is a large one, and with the VTX5000 you can access hundreds of on-line services (also see page 4).

Ease of use is enhanced by the fact that the VTX5000 contains all the communications software you need *built-in*. All you need to do is connect the VTX5000 to your +3 and the software instantly appears in your computer and the whole set-up is ready for immediate use.

Although the VTX5000 is the most widely used Spectrum modem and is highly reliable, we are offering them to +3UG members for an amazing *£20.00*.

Also included with each modem are full operating instructions, a list of on-line services for you to use and an application form/information pack for membership of *Prestel* and *Micronet*.

Anyone serious about their Spectrum +3 should snap a VTX5000 up quickly as the last remaining stock in existence on the open market won't last long at our price of just *£20.00 (inc P&P)*.

The Fixit

This excellent little device attaches to the expansion port of your +3 and allows previously incompatible Spectrum hardware add-ons to work. The incompatibility was caused by Amstrad when they 'redesigned' the +3's expansion port.

Although *The Fixit* doesn't claim to make every incompatible Spectrum add-on once again compatible in the 128K mode of your +3, it allows the majority of interfaces to at least work in 48K mode.

Devices made compatible with *The Fixit* include: **INTERFACE 1, Plus D disk interface, MULTIFACE 1, 48/128 version of the VTX5000 modem** (Please Note: the VTX5000 modems advertised above are fully +3 compatible and <u>do not</u> require *The Fixit*) and various joystick interfaces. Once device that The Fixit cannot make compatible with the +3 is the **Opus Discovery**.

If an incompatible add-on you have is included in the above list then there is a very good probability that *The Fixit* will be able to make it compatible on your +3. However, if you telephone us and tell us which device you have we'll do our best to find out for you.

For the +3 user left with unusable hardware after upgrading to the +3, *The Fixit* is absolutely essential. *The Fixit* comes with full instructions showing you how to get the best from it with hints and tips about using various interfaces on your +3.

Only £9.50 (inc P&P)

MAIL ORDER

HOW TO ORDER

To order any of the goods on the previous two pages, just write stating what you require enclosing a cheque/PO/bankers draft made payable to "NEW ASPECTS".

Please note: If you are ordering the VTX5000 modem and/or The Fixit then postage and packing is FREE. If your order is for other items as well then you must add the standard £1.50 to your over to cover postage and packing.

Post your order to: NEW ASPECTS,
                            57 Lovers Walk,
                            Dunstable,
                            Beds,
                            LU5 4BG.

EEC Ltd special offers

At the recent All Formats Fair the +3UG negotiated with EEC Ltd to give members some very special offers. We hope you take advantage of them.

PHILIPS PRO 9CM073 MONITOR
This excellent budget 14" colour monitor from Philips offers superior text and graphics display capabilities at a price more in line with monochrome or lower resolution displays. Its dark screen with 90 degree deflection provides a maximum viewing angle and with a dot pitch of 0.31, the 9CM073 out-performs its more expensive 'big brother' the 8833.

Standard controls are included, such as vertical/horizontal shift, brightness, contrast, horizontal/vertical height, text/normal switch (used for word processing) and an amber/green switch.

EEC Ltd usually sell this monitor for £220, but +3UG members can obtain the monitor from the beginning of January 1991 for only £200. This is approximately half the monitor's retail price! A +3 compatible cable is also included to allow you to make use of the monitor straight away. A full review of the monitor will appear in the next issue of +3 Contact, but for those impatient to take advantage of this great offer we whole-heartedly recommend it.

Mannesman Tally MT81 printer
This 9-pin dot matrix printer boosts a speedy 130 characters per second draft print and a 24 cps NLQ print. A parallel interface allows direct connection to the +3 and Epson compatibility ensures that the printer can be used with any +3 program allowing you to print things out. Single sheet or continous stationery operation is available via the MT81's friction or tractor feed settings. Front panel buttons allow selection of fonts and its 4.5Kg weight and <60dB(a) noise makes it the ideal desk-top printer. And at only £130 it is excellent value for money.

These offers are only available to +3UG members so send a photocopy of this page as proof of membership.

EEC Limited,
18-21 Misbourne House,
Chiltern Hill,
Chalfont St.Peter,
SL9 9UE.   Tel: (0753) 888866

GAMES ZONE

RELEASE SCHEDULE

CRETE 1941	T	12.95	IMMINENT	CCS
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FUN SCHOOL 3 (Under 5's)	T/D	12.99/16.99	OUT NOW	DATABASE
MICRO MATHS (11-GCSE)	D	24.00	OUT NOW	L C L
NORTH & SOUTH	T/D	12.99/17.99	TBA	INFOGRAMES
S.T.U.N. RUNNER	T/D	9.99/14.99	OUT NOW	DOMARK

SPECTRUM FULL-PRICE CHART

1	TEEN.MUT.HERO TURT.	MIRRORSOFT	8
2	ROBOCOP 2	OCEAN	9 <- Best Buy
3	GOLDEN AXE	VIRGIN	7
4	BACK TO THE FUTURE 2	MIRRORSOFT	6
5	DIZZY COLLECTION	CODE MASTERS	7
6	SUPER OFF ROAD	VIRGIN	8
7	WHEELS OF FIRE	DOMARK	8
8	KICK OFF 2	ANCO	8
9	RICK DANGEROUS 2	MICROSTYLE	8
10	SHADOW WARRIORS	OCEAN	7

This chart was compiled by New Aspects based on the previous month's Spectrum software sales on both tape and disc.

All the games in the chart are available at a 10% discount from their RRP. Budget games are priced as follows: £2.99 - our price: £2.49   £3.99 - our price: £3.49. Postage and packing is 50p per order.

The ratings listed are based on our opinion and the average rating the game received in Spectrum magazine reviews (where reviews were available).

Our mail order service is provided by New Aspects, and the address is:

*NEW ASPECTS\
57 Lovers Walk\
Dunstable\
Beds\ LU5 4BG*

Show Report

The All Formats Computer Fair (December 15th)

My prayers have been answered! A computer show worthy of being compared to a ZX Microfair took place on December 15th. I had a positive field day at the show with companies including Chezron Software, Format Publication, BG Services, EEC Ltd, Enigma Variations, SAMCO Ltd, Spectrum Discovery Club, Flexibase Software, and PBT Electronics having stands. Chezron Software made a welcome debut to the All Formats Show and were demonstrating and selling issues of their Outlet disc magazine. BG Services shared the Chezron stand and were selling VTX modems, Fixits and had the only 10 copies currently of the new DR SCROLL software in existence on sale. Format Publications were selling back issues of Format magazine as usual, as

well as offering special subscription discounts. Although I did not see Flexibase Software, my spies tell me that David Wornham was on the Spectrum Discovery Club stand giving demonstrations of his Flexipage program. PBT Electronics were selling Spectrum cables, software and MGT Lifetime drive, as were EEC Ltd who had their usual plethora of Spectrum gadgets. I also took the opportunity to further the +3UG's association with EEC Ltd, and you can see the fruits of this meeting on page 25.

The atmosphere at the show was amazing and Alan Miles summed up the event at the SAM Seminar SAMCO held when he called the show 'more of a social event than a glitzy computer show'. The show was thick with well known faces of the Spectrum

world. One such face was that of Dave Gorski who now runs Aspects BBS in Manchester but in his day as a Spectrum programmer wrote the ROM inside the VTX5000 modem. Chris Pile was also at the show to promote his Dr Scroll communications software on the BG Services.

The next All Formats Fair is being held at the same venue, The New Hall of the Royal Horticultural Society, Greycoat and Elverton Street, Westminster, London; on February 2nd 1991 from 10am-5pm. If the atmosphere and excitement of the December fair that both the visitors and exhibitors generated in half as good in the February show, then any Spectrum user will love the show.

Daniel Garner

Public Domain

All the latest public domain software examined, as well as this month's updated +3UG PD Library lists and more details about our *PD Gold* range.

SAMPLEX
+3UG PD Library 170-172

SAMPLEX is an excellent PD sound sampler by The Guardian (aka Damien Guard) which allows anyone to record sounds digitally and then replay them. The program itself is very well presented with all the functions bein easily accessed via single key presses. The main screen also contains a real-time sound meter which reacts accordingly with the sound you input to the +3 via the TAPE port. This is very useful when fine tuning the input to cut out the usual distortion accompanying +3 sound sampling. Samplex also comes supplied with three demonstration samples which unfortunately do not do the program justice as the sound quality of the demo samples is very bad. However, the results we experienced using our equipment proved that the program is capable of much better quality samples than the demo ones suggest. Although the sampling machine code routine is not the most efficient I've ever seen and the total amount of sample of you can fit in memory is not that high, the quality of the sample is very acceptable indeed.

For those interested in the subject, Samplex is an excellent program and is certainly very easy to use.

EDITVIEW 2
+3UG PD Library 166

This great utility for modem users by Philip Aston allows the creation of Viewdata frames, like those on Micronet. Unlike the frame creation features of other comms programs, Editview 2 can be used without your VTX modem plugged into your +3 thus eradicating the usual balancing act. The program itself is very easy to use with a pointer driven user interface (you can't use a mouse though) that allows upto 26 frames to be created in memory at one time. Editview also contains several features not found in other such programs. These include a cut and paste facility allowing parts of frames to be cut out and used on other frames. Graphics are also well supported with facilities available to draw lines and circles anywhere on the frame. So if you're invloved with a Viewdata BBS or you want to run a Gallery on Micronet, then Editview is essential.

PD Gold

Our new PD Gold packages really seem to have caught on, so here's the details again for those who missed last month's issue.

These are basically compilations of similar types of PD software. For example, the Comms Gold pack consists of a disk containing all the communications programs in the library and Disk Gold consists of a disk all the disk utilities in the library. Each of the PD Gold disks also comes with a booklet which contains full instructions and technical information for all the programs on the disk which eradicates the usual hit-and-miss usage associated with PD software.

There are two PD Gold disks available at present, Comms Gold and Disk Gold. Each one comes on a 3" disk with the accompanying booklet and cost just £4 each.

Comms Gold Firescroll, Fireview 2, Fired, Fireview 2 Convert, Dr.Scroll, RS232TR, Radio Comms, Fireview (VTX711), Dr.Scroll 2. *Editview 2*

Disk Gold Menu/Cat Utility, Boot Sector Modifier, Headload, Headcopy, Cat All, Parameters, Set Default Utility, Autoloader, +3 Disk Checker, Recover, Supermat, Hi Format, C-DOS.

Machine Code Gold Code Shifter, REM Store, Jacksoft Assembler, Monitor, Disassembler, REM Maker, MC to BASIC, Z80 Disassembler, BASIC Compiler

Watch out in the next issue of +3 Contact for details about a new PD Gold package.

PD Library List

Page 1

No	Title	Author	K	Description
1	Noughts and Crosses	Gary Stimson	12	Can you beat your computer at such a simple game?
2	Revise!	Gary Stimson	5	This program could prove invaluable if you're learning a language
3	Menu/CAT Utility	Brian Gaff	8	Allows you to perform file operations with ease
4	Boot Sector Modifier	Brian Gaff	2	Allows you to alter a disk's boot sector...Use with caution!
5	Headload	Brian Gaff	2	Alters a file's header (e.g. BASIC to m/c). Great for hackers!
6	Headcopy	Brian Gaff	2	Copies tape headers to disk
7	Cat All	Brian Gaff	3	CATs all 16 user areas of a disk, including hidden files. Print option
8	Parameters	Brian Gaff	1	Sets the disk drive parameters to make it faster and quieter
9	Set Default Utility	Brian Gaff	1	Lets you set the default user area in BASIC - normally not possible
10	April Menu!	Gary Stimson	2	Displays a fake +3 main menu, which could be altered as required
11	CAT	Daniel Garner	2	Stores a disk catalogue for use in your own programs
12	K Free	Daniel Garner	2	When called, returns with the number of K free on a disk
13	REM Store	Chezron Software	12	Stores upto 7K of code in a BASIC REM statement. Great utility!
14	Axel F	Daniel Garner	3	Excellent 128K version of the famous tune
15	BASIC Compressor	Daniel Garner	6	Compresses BASIC programs by putting VAL " " around numbers
16	Screen Planner	J.Rimmer	9	A collection of routines to access the screen
17	Sort Demo	J.Rimmer	5	Timed demo of 7 useful sorting routines
18	Firescroll	Paul Clevett	14	Great scrolling terminal software for the VTX5000 modem
19	Fireview II	P.Clevett/K.Beddoe	27	Excellent viewdata terminal software for the VTX5000
20	Fired	Unknown	3	Transfers Editor frames to Fireview and vice-versa
21	Fireview 2 Convert	Unknown	4	Sets up program 19 to your liking (character sets, etc)
22	Progmail	Keith Beddoe	5	Allows VTX5000 users to send programs via Viewdata mailbox
23	Softmail	Keith Beddoe	5	Receives program sent with program 22
24	Date 2 Day	David Wilson	3	Tells you the day of the week for a 20th Century date
25	Ultra Clear A Screen	Owen Brown	3	Super fast machine code clear screen routine!
26	Label maker	Keith Pirie	3	Stores names and address for label printing
27	TV Trivia	Keith Pirie	32	Telly quiz with different categories for upto 4 players
28	The Earth	Owen Brown	7	Good SCREEN$ of our own planet, viewed from space
29	Sunset	Owen Brown	7	Peaceful sunset SCREEN$
30	Securelt	Daniel Garner	6	Makes numbers in a program appear differently to a hacker
31	AutoSecurelt	D.Garner & G.Stimson	2	Fast automated version of program 30
32	Logo	Owen Brown	1	Simple program to create interesting screens (not a LOGO language)
33	Vector 3D	Owen Brown	4	Allows you to experiment with vector graphics
34	Other Worlds	Geoff Weamouth	31	A selection of screens with a screen editor
35	Varisave	Chezron Software	7	Enables more than one array to be saved at a time
36	Spin It	Daton Software	23	A great block spinning puzzle game
37	Multi-Plash	Paul Monaghan	1	Psychodelic attribute scrolling!
38	Trun 48	Paul Monaghan	1	Use in your own programs to enter 48K mode without the error
39	Super Input	Paul Monaghan	1	Machine code input routine for use in your own programs
40	Muzak'	Paul Monaghan	6	Superb 3-channel music in machine code
41	SpecTec Demo and Snake Game	Dave Gosnell	30	A great Amiga-style demo PLUS the classic Snake game
42	Boot	Unknown	2	A machine code routine to completely reset your +3
43	Sound to Light	Daniel Garner	7	TWO different sound to light converters
44	Kingfisher	Richard Shelford	7	Colourful SCREEN$ of the bird of the river banks
45	Countryside Scene	Richard Shelford	7	Excellent SCREEN$ of the Cornwall countryside
46	Autoloader	Marc Reed	13	Useful utility that automatically adds a loading menu to your disks
47	Easylist	Daniel Garner	2	Produces neat, structured and easy to read BASIC listings
48	Calendar	Daniel Garner	2	Produces a neat calendar for any month, with a print option
49	+3 Disk Checker	Daniel Garner	2	Checks disk space and that files are not corrupted
50	Fonts	D.Garner & P.Gideon	8	3 Slick new character sets for your Speccy
51	Recover	Joe Worall	2	An essential program that will restore erased files!
52	Big Text	P.Gideon	2	Allows text to be displayed in a variety of different sizes
53	Screen Fade	Daniel Garner	1	A very slick routine to fade the screen
54	Hex-Dec-Hex Converter	Daniel Garner	2	Converts hexadecimal numbers to decimal numbers and vice versa
55	REM Address Finder	Daniel Garner	2	For use with program 56. Finds address of a REM statement
56	64 Column Display	Daniel Garner	4	Squeezes 64 characters into one line of the screen
57	Chordata	Dave Rogers	17	Something to do with music, I'm not sure what, though!
58	Drawmaster	Grant Pritchard	23	A great pools-predictor PLUS a random story generator!
59	Axel F, The Sequel!	M. Kirk & L. Davis	10	Another Axel F tune
60	Clock	Lee Davis	3	Displays an on-screen analogue and digital clock
61	Cyborg	Lee Davis	7	Rather slow arcade-style game
62	Flippery Screen'	Lee Davis	2	Spins a screen. Takes a while to set up but the finished effect is good
63	Message Scroller	Lee Davis	2	This is ... er ... a message scroller!
64	Screen Storer	Lee Davis	1	Stores a screen in RAM to be recalled at will
65	Shape Maker	Lee Davis	1	Draws pretty patterns!
66	SPECulator	Lee Davis	7	Stock market speculation game
67	Lee's Wordprocessor	Lee Davis	3	Very poor BASIC "word processor"
68	Speech Sampler	Lee Davis	2	Good machine code sampler
69	Fonts Galore!	D.Guard	28	24 excellent new Spectrum fonts
70	Ramset	Brian Gaff	3	Alters the RAM disk cache and position
71	Crunch3	Chris Pile	12	Superb program. Crunches many files into one
72	Double Height Text	Daniel Garner	2	Prints double height characters
73	INSTR$	Daniel Garner	1	Gives your +3 a much needed INSTR$ function ...
74	LEFT$, RIGHT$ and MID$	Daniel Garner	1	... and LEFT$, RIGHT$ and MID$
75	+3 to 128 Converter	Daniel Garner	8	Converts +3/+2A BASIC commands to work on a Spectrum 128/+2
76	Deekdo	Brian Gaff	1	Program to DEEK and DOKE memory - great for hackers!
77	Oxygene	D.Guard	44	Excellent sampled music demo of Oxygene
78	Guardians	Wizard	19	Great 3D arcade adventure game
79	Morse Code Tutor	P.Gideon	5	Good program to help you learn Morse Code
80	Mouse Pointer Routine	D.Garner	8	Allows a pointer to be moved using a Kempston/Genius mouse
81	Dataser	Unknown	1	No info available

New address: 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

PD Library List
Page 2

No	Title	Author	K	Description
82	Dr.Scroll	Chris Pile	10	Version of Dr.Scroll for the VTX711 modem
83	Mailsoft	Keith Beddoe	10	Programs 22 and 23 in one
84	RS232TR	Mike Sun	4	X-Loader/X-Modem transmission/receivil program
85	Tascol	Brian Gaff	2	Sets up Tasword 2 colours to your liking
86	Uttreformer	Brian Gaff	6	Converts viewdata frames into Tasword 2 files
87	Mega Blast	Daniel Garner	9	A great sound to light converter
88	Compare	Unknown	4	Compares two files and erases if required
89	Hold It	Chezron Software	4	Great screen store utility
90	Code Shifter	Chezron Software	7	Relocates "unrelocatable" code
91	48 Return	Daniel Garner	1	Goes from 48 to +3 BASIC retaining use of printer port
92	Hangman	Peter Naughton	18	A 2-player Hangman game with great graphics
93	Procross	Chezron Software	29	Excellent crossword editor complete with demo crossword
94	Supermat	Ian Cull	4	Formats disks to 192K per side - 38K extra per disk!
95	CD Demo	Players Software	40	An 8-track musical extravaganza
96	Manager	Peter Naughton	16	An easy to use home accounting system
97	Radio Comms	ON5kN	16	THE program for radio hams! Handles RTTy, SSTV and Morse!
98	Hi Format	Chris Pile	2	Formats disks to 203K per side!! A must for your collection!
99	Amiga Ball	Leif Mortensen	7	SCREEN$ of the classic Amiga ball picture
100	Optical Illusion	Owen Brown	7	A brilliant SCREEN$ of the infamous "waterfall"
101	Box Clever	David Tonks	29	A simple, but difficult and challenging puzzle game
102	Up The Wall	David Tonks	21	A maze-style game with a twist!
103	AI Demo	D.Smith	2	Artificial intelligence game
104	Biorhythms	D.Smith	5	Creates a graph of your biorhythms for a given month
105	Super Darts	D.Smith	9	An addictive darts game
106	Mastermind	D.Smith	9	A Mastermind game versus the computer
107	New Pointer Routine	Daniel Garner	8	Updated version of program 80 for the Kempston/Genius mouse
108	Jacksoft Assembler	H.G.Zezschwitz	9	A powerful Z80 assembler with full text editor
109	Infodemo	Gary Stinson	8	A very small demo of our PD Infobase
110	C-DOS	Robin Clayton	2	Another program to make file operations easier
111	Gagdisk	Anonymous	24	A huge collection of jokes - some dodgy
112	Digipix (Part 1)	Grant Punchard	57	A massive collection of digitised pictures
113	Digipix (Part 2)	Grant Punchard	57	All 3 parts are needed for the program to work.
114	Digipix (part 3)	Grant Punchard	57	Total Length=171K 20p per set (members), 40p (non-members)
115	Mentor	K.London	5	A short but good disassembler with a working print option
116	Disassembler	Dave Gerald	14	A great Z80 disassembler coping with the undocumented op-codes
117	Ghost	M.Harris	5	48K Speccy emulator - some "+3 incompatible" games now work
118	Timed-Tables	P.Smith	9	Times tables test against the clock - one for the kids!
119	Sums	K.London	5	Test your (and your childrens') maths
120	The Shrink	Unknown	10	Got a problem? You need The Shrink!
121	Fireview, VTX711 Version	C.File&J.Goodwin	27	A VTX711 version of the excellent Fireview II comms package
122	Dr Scroll 2 (VTX711)	Chris Pile	7	Enhanced version of Dr.Scroll (82) with CRC Xmodem
123	Graveyard	Owen Brown	7	Spooky scene over a graveyard
124	Banner Maker	Keith Pirie	4	Create large banners on Epson compatible printers
125	Music Trivia	Keith Pirie	30	Music quiz for upto 4 players
126	One Arm Bandit	Keith Pirie	11	An addictive fruit machine simulator
127	The Rat	David Wilson	6	Searches memory for 3 ASCII codes
128	Objects	Keith Pirie	8	Clip Art: Test tube, phone dial, arrow, brush, syringe, graph
129	Japanese Patience	David Tonks	30	Version of the classic card game, Patience
130	Oriental	Leif Mortensen	16	A difficult version of the classic Patience game
131	4 In a Line	David Tonks	17	A two player game of "Connect 4" with great graphics
132	Garden	David Tonks	7	An amusing cartoon picture
133	Solitare	F.Hampson	14	Speccy version of the ancient game
134	Solchess	F.Hampson	10	A combination of solitare and chess
135	Smooth Scroll	Paul Preston	4	A useful upwards scrolling routine with instructions
136	Toolkit 50	Leif Mortensen	9	An excellent toolkit with over 20 functions
137	Utility 1	Geoff Wearmouth	8	Great utility with UDG editor, TV Testcard and font editor
138	Utility 2	Geoff Wearmouth	18	Easy to use utility with block delete and full renumber functions
139	Linesplit	Brian Gaff	5	Splits a BASIC line in two to save retyping
140	Chezfill	Chezron Software	6	A fast fill routine complete with demo
141	Grouf	Leif Mortensen	7	A colourful fantasy picture
142	Oh Sh@#!!	David Tonks	7	Amusing and brilliantly drawn cartoon screen
143	Convertall	Ken Davies	4	A program for those useful number conversions
144	ANSI Graphics	J.Dourish	9	20 useful UDGs similar to the ANSI set found in PCs.
145	REM Maker	M.Goodman	3	Machine coders! Creates an empty REM statement of any size.
146	Mylinear	I.Miller	3	Something to do with linear interpolation, whatever that is!
147	Milgraph	I.Miller	4	More linear interpolation! Plots graph of any function y=f(x)
148	Homesec	Keith Pirie	8	Easy-to-use program to assess the security of your home
149	Clip Art	Keith Pirie	21	3 more screens of PD Clip Art
150	Batman	Chris Kelly	7	Piccy of the famous Batman logo
151	MC to BASIC	M.Harris	2	Great program to put machine code into DATA statements
152	Planet	K.Hardy	7	Reasonable picture of a planet and its moon
153	Ghosts 'n' Goblins	K.Hardy	7	Picture from the famous game
154	Mem	Peter Naughton	4	A very easy to use disk menu program, suitable for small children
155	Z80 Disassembler	Axel Schmice	5	Yep, it's another disassembler!
156	Boombox	B.Oreskov & H.R.Jensen	19	A music demo with a selection of different tunes
157	Drumbeat	Unknown	2	A drum beat simulator allowing you to write your own beats
158	Snake	Unknown	6	Another simple but challenging game
159	BASIC Compiler	Unknown	8	An excellent program which converts BASIC to Machine Code
160	32 x 42 Screen Display	Unknown	3	Allows you to PRINT AT upto 32, 42
161	ASCII to BASIC	Unknown	2	Allows you to create a BASIC program using a word-processor
162	Trail Racer	Don Nielson	49	Commercial quality arcade game
163	Crazy Cars	Unknown	21	Another commercial quality arcade game
164	MaxiRAM	D.Garner & B.Gaff	1	Enlarges drive M: from 58K to 62K

New address: 57 Lovers Walk, Dunstable, Beds. LU5 4BG.

PD Library List

Page 3

No	Title	Author	K	Description
- 165	Balldemo	The Guardian	55	Graphics demo
- 166	Editview 2	Philip Aston	14	Great Viewdata frame editor
- 167	TV Test 2	The Guardian	3	Make sure your TV is tuned in
- 168	DigiShow (Part 1)	The Guardian	47	Great set of digitised pics
- 169	DigiShow (Part 2)	The Guardian	47	* Both parts needed to work *
- 170	SAMPLEX (Part 1)	The Guardian	36	Excellent sound sampler
- 171	SAMPLEX (Part 2)	The Guardian	36	* All 3 parts needed for the
- 172	SAMPLEX (Part 3)	The Guardian	36	program to work *
- 174	SNATCHA	P.M.Reilly	11	SCREEN$ to Viewdata convert

PD Library News

February will see the next phase of the introduction of the European programs the +3UG has received. These are all very exciting and they'll be something for everyone, whether you like games or utilities. We're also hoping to get a PCB designer program ready in time for February and this program will be of use to anyone interested in electronics.

There is also a programmers toolkit containing over 50 great routines for you to use in your own programs. These routines including screen scrolling, sprite handling, attribute swapping, and many many more. The easy to understand demonstration program will show you exactly how to get the best out of each of the routines. In no time at all, your programs will not only be better but will be presented much better.

There are also quite a few other smaller programs which will be added to the +3UG PD Library in February, so watch this space!

New address: 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

PD Library Prices

To order Public Domain Software from our list, simply follow these steps:

• Write down the program numbers of all the programs you require, preferably in numerical order. Programs names are not needed but can be included for verification if you so wish,
• Consult the table below and work out how much your order amounts to,
• Send your order, together with a blank 3" disk and a cheque or postal order made payable to Garner Designs to the new PD Library address: GARNER DESIGNS, 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

	+3UG Members	Non-Members
Titles 1K to 9K:	5p each	10p each
Titles 10K to 19K:	10p each	20p each
Titles 20K to 29K:	15p each	30p each
Titles over 29K:	20p each	40p each
CP/M Volumes:	50p each	£1 each

Special Offer
If you spend more than £3 on PD software you may choose an additional Five programs (only those less than 29K long) for NO ADDITONAL COST !!

ORDER CHARGE: Please remember to add 60p administrative charges to the final amount.

Have you got any Public Domain software that we haven't? If so, WE WANT THEM! Submissions to the library are always welcome and as long as the software is of reasonable quality it should find a place in the library.
So if you feel that you are able to contribute (whether it be your own creation, or something that you have obtainable from another PD source) then please do, we and the other members will be very grateful.
   Anyone submitting software (including brief instructions please, preferably contained within the program itself or on a .DOC file) to the Library will receive two FREE programs of your choice for every one of yours that is included in the Library. If we don't require your software then you can have one FREE program from the software list (excluding CP/M volumes!). Also, if you would like to submit a CP/M Volume that we haven't got, then we will give you one FREE CP/M Volume of your choice or 50p worth of other software from out list. When compiling volumes, please note that they should be nearly 173K long (i.e. one side of a disk) and include all the relevant .DOC files.

CP/M Software List

   CP/M Volumes are available for only 50p each (non-members £1), when you send a formatted 3" disk. Each volume uses upto one side of a disk. Most files have an accompanying .DOC instruction file that can be read with COPY "name.DOC" TO SCREEN$ or printed using COPY "name.DOC" TO LPRINT. Remember that CP/M Volumes will require a copy of Locomotive Software's (address: Locomotive Software, Allen Court, Dorking, Surrey, RH4 1YL. Tel: 0306 740606) CP/M Plus operating system and sometimes Mallard BASIC (which comes free with CP/M Plus). The following volumes are currently available:

Volume 1 - Features expanded disk catalogue, DICB-like disk maintenance utility, disk copying tool and a good WORDSTAR compatible wordprocessor.
Volume 2 - A MASSIVE collection of programs and routines. Includes: Anagrams, biorhythms, calendars, currency conversion, disk clean-up utility, file cruncher, library utility, Mastermind game, ASCII file displayer, base conversion, file sorter and much more.
Volume 3 - Another huge CP/M collection. Including: File extractor, FX80 printer tool, file printer, new RAM disk program, RBM remover, find and exchange program, "Wordstar" cleaner and more! Something for everyone!
Volume 4 - Another great assortment of files: Useful text reformatter to print on BOTH side of fan-fold paper file chopped, control stripper, find word routine, sector editor (great for hackers!), word/line counter, SpeccyMess (+3 version of Mess) and more! Serious +3 users will love this!
Volume 5 - If you're into programming, get this. This volume contains an excellent version of the popular C language (with files, including a code optimiser) PLUS a very comprehensive Z80 assembler.
Volume 6 - Contains a version of the industry standard MICROSOFT BASIC. Also, files for Volume 5's C Compiler and more.
Volume 7 - DBQ, a database with a powerful structured query language, designed for ease of use. Complete with 59K on-disk manual.
Volume 8 - DIMS, an easy to use card-index style database capable of mail merge, label printing, etc. Can even create mail merge files for Tasword +3.
Volume 9 - Contains DU49 - a superb multi disk formatter and PLOT 33 which will turn your printer into a graphics plotter!

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If you're +3UG subscription is coming to an end, you should have received a letter with this issue of +3 CONTACT to inform you. So here's how you can resubscribe to +3 CONTACT and all the +3UG's services (with the usual splattering of special offers thrown in for good measure too).

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SPECIAL SUBSCRIPTION OFFERS:

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1 years sub + Spectrum Plus 3 Dust Cover - £13.90 (A saving of £2.10)

N.B. These special offers are valid until 16th February 1990.

So if your subscription runs out next month or in the next couple of months then make sure that you resubscribe to ensure your supply of the best and only Spectrum +3 magazine and the use of the largest Spectrum +3 PD library this side of Saturn.

Much play has been made about the extra 80K of memory that the Spectrum +3 has. However, as any BASIC programmer will know, the Spectrum only allows BASIC programs to be written in 41K chunks. The ram disc can be used to extend the amount of memory available to both BASIC and machine code programmers, and this article shows you exactly how to get the best out of the beast.

A RAM Disc (or virtual disc) is basically an area in the computer's RAM (Random Access Memory) which is set aside to store programs and data. The RAM Disc works much like a disc drive, i.e. you can save files to it, load files from it, erase files which are on it, etc. However, whereas floppy disc drives store files on discs which can only be erased when the user requires so, a RAM disc is erased when then computer is turned off. For this reason, RAM discs can only be used to store files on on a temporary basis. What's the use of

EXTENDED MEMORY
Paul Wallace shows you how to use it

a temporary disc drive? Well, a major advantage is its speed - loading a program onto the RAM disc is very quick compared to using a convention disc drive.

Usage on the +3

The syntax to use the RAM Disc is exactly the same as for using using the built-in 3" disc drive in that you can use the normal *LOAD, SAVE, MOVE* commands, etc. The RAM Disc is assigned the drive identifier of M: ,with the internal 3" drive being A: and an external drive being B:. Because +3DOS claims some of the +3/+2A's extra memory for its own purposes, the RAM Disc on a +3 is smaller in capacity than on the 128K/+2, being 58K

compared to 86K on the earlier 128K machines. For example, to store the program currently in memory onto the RAM disc, calling it "THISPROG", you would use the following command:
SAVE "M:THISPROG". To load it back, the command is:
LOAD "M:THISPROG". To see the contents of the RAM disc, use:
CAT "M:" or *CAT "M:" EXP.* Programs can be copied from floppy disc to RAM disc using the *COPY* command, e.g. *COPY "A:*.*" TO "M:"*

PROGRAMMING
If you write programs which normally exceed the 41K BASIC boundary, then the RAM disc is an easy way of 'increasing' the memory

available to program in. For example, if a program requires the use of tables of data which are referred to by the computer at different stages in the program, it is a simple job to store the tables on the RAM disc as *DATA* files and bring them back into memory (with the LOAD "M:..." command) whenever they are needed.

This is the principle of the OVERLAY. An area of memory is set aside specially for recieving blocks of data - data files - brought down from the RAM disc. If the blocks are of unequal size, the area must be bit enough to hold the largest. Suppose the largest file is 6000 bytes long. Allowing for the fact that memory from 65368 is reserved for user-defined graphics (UDGs), the first byte of the data file should be at 59368.

At the beginning of the program you need the statement CLEAR 59367 to set aside that area of memory as the OVERLAY AREA. To bring down a file from the RAM disc into this area the command *LOAD "M:file" CODE 59368*. Even a very large file is transferred in an instant, with very little interruption to the flow of the program. When a different set of data is required it can be brought down to overlay part of, or the whole of the existing data.

It is best to be systematic and always load the data to the start of the overlay area. If you are doing a good deal of overlaying, it is worth setting up a variable, say OAREA, with the start address of the overlay area, e.g. *LET OAREA=59368*. Then the loading command can be simplified to *LOAD "M:filename" CODE OAREA*.

If you have two sets of data which will both fit into the overlay area at the same time, and particularly if you are reading data continually from one block and storing it in another, you can benefit by having both sets of data in the overlay area but at different positions so that thay do not overlay each other. You might fo doing that repeatedly, in a loop (see Figure 1) but if there is not sufficient room for both sets of data, transfer between RAM and RAM disc is so fast you can *LOAD "M:xxx"* and *SAVE "M:xxx"* data files alternatively in a loop without any appreciable loss of speed - Figure 2. Note that in Figure 2, the loop includes the *SAVE* command so that data stored in the RAM disc is updated each time round the loop.

Figure 1 - Using overlays in a loop, where two data sets are resident in the overlay area at the same time. Data is transferred from set 2 to set 1

```
5 LET oarea=59368
10 LOAD "M:set1" CODE oarea: LOAD "M:set2" CODE (oarea+1000)
20 FOR w=1 to 30
30 LET value=PEEK (<address in set2>)
40 LET newvalue=value: REM 'value' subject to unspecified calculation and stored as 'newvalue', e.g. LET newvalue = value * PI
50 POKE <address in set1>, newvalue
60 NEXT w
70 SAVE "M:set1" CODE oarea,1000
```

It is surprising how easily a program can grow to such a size that it no longer fits into the main RAM. Yet certain sections of programs are probably used only very occasionally. There may, for example, be a section at the beginning of the program for selecting options, dimensioning arrays and assigning values to variables. That section may never be returned to again, yet it occupies valuable space for the entire running time of the program.

A program normally (if it is well structured) consists of a main program which calls a number of subroutines. Many of these subroutines may be quite lengthy and could almost be a mini-program.

These subroutines may also call other subroutines for such purposes as handling displays, creating sound effects, displaying things on the screen, etc. These 'secondary' subroutines which are used by the primary subroutines are usually relatively short. It is the primary subroutines which make up the bulk of such a program. Yet at any given time, only one of them is being used. It is the idea of dynamic programming to store each

Figure 2 - using overlays in a loop with only one data set resident at any one time. Different tables are brought down to the beginning of the overlay area when required by the loop.

```
5 LET oarea=59386
10 FOR w=1 to 30
20 LOAD "M:set2" CODE oarea: LET value=PEEK (<addres in set2>)
30 LET value=newvalue: REM 'value' subject to unspecified calculation and stored as 'newvalue', e.g. LET newvalue = value*w
40 LOAD "M:set1" CODE oarea: POKE <address in set1>, newvalue
50 SAVE "M:set1" CODE oarea,5000
60 NEXT w
```

primary subroutine on the RAM disc and bring it down into main RAM only when it is required. The working program thus consists of the main program (which is short) containing a number of short secondary subroutines, and the primary subroutine which is currently in use. Dynamic programming relies heavily on the *MERGE* command. All the primary subroutines the main program needs will be stored on the RAM disc. They all must begin with the same line number, e.g. 8000, and their lines must be numbered in even increments, say 10 line steps. Their first line must be greater than any line in the main program and secondary subroutines, but their length is not that important (except the combined length of the main program, the secondary subroutines and

the largest of the primary subroutines on the RAM disc must not exceed the 41K BASIC boundary). To bring a primary subroutine into action, the main program has statements of the type:
MERGE "M.newsub": GO SUB 8000

Such statements merge the required subroutine into the main program quite quickly. When a primary subroutine is merged, its lines replace those of the same lines belonging to the subroutine which was merged in previously. If the previous subroutine was longer than the new one, the final lines of the previous subroutine will remain there at the end of the program. They will not be used, of course, since there is a RETURN at the end of the subroutine. Before the subroutine is merged, it is transferred from the RAM disc to the

area of memory following the resident program. That area must must be big enough to accomodate your longest subroutine - see Figure 4.

This means you must plan and take careful note of how much space your main program is taking up as you develop it. To overcome this restriction some long subroutines may have to be held on the RAM disc in sections, each starting at line 8000, and merged and called one at a time. Other subroutines may be unavoidably long, especially when they consist mainly of a long loop. They can also be held on the RAM disc as two or more sections but their line numbers are consecutive blocks - 8000-8090, 8100-8190, and so on. The sections are each merged one after the other, building the complete subroutine before it is called. The economy of memory here is that by merging short sections, we do not need to allow so much space for the merging process.

+3/+2A Programmers' Shortcuts

Because +3DOS claims some of the RAM disc for its own use, the BASIC programmer is left with only 58K to work with, which upgraders from a 128/+2 to a +3/+2A will find very annoying.

However, it is possible to limit the amount of space that +3DOS 'steals' in order to increase the size of the RAM disc to 62K (its absolute maximum). The method to do so is quite simple, but reserved for machine code programmers however. Having said that however, there is a public domain utility called MAXIRAM (+3PD Library No.164) which does the job of boosting the RAM disc from 58K to 62K for you. For those machine code programmers wishing to know how this can be done, the idea is based around the DOS SET 1346 routine in +3DOS at 013Fh (319d). Page 237/238 of the +3 manual details what it does, but in our case we need to use the routine to only give +3DOS the smallest space possible for its cache and buffers. This can be done by setting the D, E, H and L registers to 0, 0, 0 and 128 respectively prior to calling the DOS SET 1346 routine (remembering of course to switch the +3DOS ROM into memory at 0000h (0d). Although once this routine is called, it erases the contents of the RAM disc, you are left with a 62K RAM disc to use. Page 238 of the +3 maunal says that 'a cache size of 0 will still work but will seriously impair the floppy disc performance' - this is not

strictly true as all normal loading, saving, copying, etc can be done without noticing any differnce whatsoever, However, if you are copying particularly large files (over about 50K) from disc to disc you may experience problems with the *COPY* command not being able to cope properly. This is because the buffer is not as big as it is normally and so results in some abortive *COPY*s.

Machine code programming and the extra RAM

Machine code programmers must approach the extra RAM in the 128K Spectrums completely differently. There is no RAM disc as far as machine code is concerned, just a number of 16K RAM 'pages' which can be interchanged in the memory area from 49152-65536. Unlike using the extra RAM from BASIC, 128K, +2, +3 and +2A machine code programmers can look at the extra RAM in exactly the same way as the method for switching RAM pages into memory at 49152 is the same for all 128K Spectrums. There are 8 RAM pages in total which make up the 128K of memory. Some of the

pages are used for certain purposes however, like page 5 which is usually switched in at location 4000h (16384d) and is used as screen memory. Page 2 is usually switched in at 8000h (32768d) and is used by BASIC as data storage as is page 0 which is switched in at C000h (49152d). On the +3/+2A a chunk of page 7 is used by +3DOS fo storage. To the run-of-the-mill BASIC programmer the RAM pages are completely 'transparent' and will be of no real direct use except if he uses the RAM disc which uses the RAM pages as storage. However, to the machine code programmer, the facility of having much more memory available that can be 'paged' in and out at will is very useful. Switching different RAM pages into locations C000h-FFFFh (49152d-65536d) is a very easy task and doesn't take up too much space or processor time. The following assembly program shows how you can switch between the eight RAM pages.

Once a RAM page has been paged in you can store machine code, or for example a screen. You could then switch the page out by using the same routine as above but with a different page refernece in the accumulator. Once another page has been switched in, although the data you put into the previous page has 'vanished', by re-paging that RAM page you can access all the data you put in it once again.

This technique of RAM page switching is well used in Spectrum games programming, with many games now coming in 128K versions. The programmers now use the RAM pages to store extra machine code that would either previously been left out or would have been included only in a tape-based multi-load game.

Article written by Paul Wallace with extracts from previous issues of +3 Contact

One stage further

For those wanting to take extended memory programming one stage further, there is an excellent article by M.Harris in issue 16 of +3 Contact which shows you how to create a contiguous 64K RAM environment in a Spectrum +3.

This really is the ultimate in extended memory programming and I would be the first to congratulate anybody who manages to program an application in this 64K environment (CP/M Plus by Locomotive Software is the only program to my knowledge to utilitise this unique feature of the +3).

If anybody does manage to put the 64K Paging technique to good use then please write and tell the +3 Users' Group, because this is an area of +3 programming which is still in its earliest days of infancy and I'm sure many members would be interested in hearing the practical difficulties involved.

Paul Wallace.

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LD A,17        ; Number in accumulator must equal 16+page
number. In this case page 1.
LD BC,32765    ; Prepare for switch
OUT (C),A      ; Perform switch
LD (23388),A   ; Keep BANKM system variable upto date.
RET            ; End.
```

On-Line

A version of Dr Scroll for the VTX711 modem has been available for some time and its ability to access scrolling BBS and download files using the XModem standard has been admired. Although the VTX711 version is now in the public domain, a VTX5000 version has only just been finished. Its author, Chris Pile, is quite well known in Spectrum circles and Dr Scroll is his best yet.

Coming on cassette, Dr Scroll can be configured to work with any Spectrum system and making a disc version was not too difficult. The 11 page A5 instructions manual details this well. Once loaded, you can alter any or all of the terminal's settings for auto line feeds, character echo, bits per word, parity, stop bits and text spool option. The default settings will allow access to the majority of scrolling bulletin boards, although some non-standard BBS may require you to change these settings to gain access.

Dr Scroll's text spool option allows you to capture all the data transmitted or received, thus allowing your entire on-line session to be reviewed off-line. This is also extremely useful if you want to download a text file from a BBS as all you need to do is to set the text spool to ON, select the 'view the text file' on the BBS and then because it is listed to the screen it is also stored in the spool. Spools can be loaded and saved to disc (and could be loaded into a word processor to extract a 'captured' text file). Spools can also be listed onto the screen and printed out. Dr Scroll's main menu contains all the options you need to make effective use of the software and begin able to download software via XModem is a real boon. Bulletin boards such as Aspects (061 792 0260) and Fourth Dimension (0202 600305) have loads of software available for you to download and use and this is an excellent way of collecting PD software.

Also included is an XModem uploader option for sending files to a BBS, but the VTX5000's sluggish 75Bps transmit speed limits the usefulness of this feature. An ASCII Uploader is more useful however and for uploading text files to BBSs it is extremely

useful.

Dr Scroll's manual explains all the program's options briefly, but as it is really the BBS which is doing all the hard work and not Dr Scroll, reams of technical information is not really needed. The manual excellently explains how to log onto a scrolling bulletin board.

One thing that Dr Scroll lacks is a option to translate a downloaded XModem file into a BASIC program. Although a vast majority of files on bulletin boards come in a 'packed' form which can be unpacked by a downloadable utility, some bulletin boards have BASIC files which once downloaded via XModem need a 'move to BASIC' option which Dr Scroll does not have, and utilities to do the job are not widely available. However, this is a minor grumble, and we have since located a utility which allows you to do this which will be added to the PD library next issue.

All in all, Dr Scroll is the comms utility that Spectrum users have been waiting for. Not only does it allow access to scrolling bulletin boards, but it also has built-in Xmodem upload and download facilities. The program is simple to use and so reinforces the VTX5000's 'plug in and go' concept.

Copies of Dr Scroll can be obtained from:
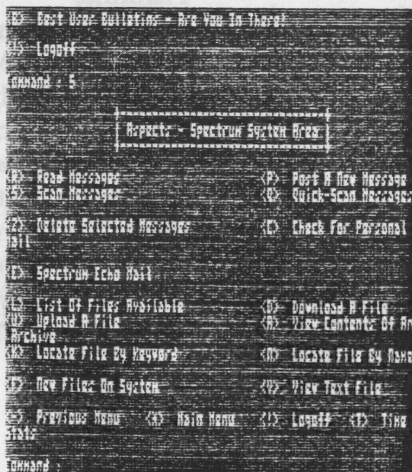
Digital Image Software,
c/o Fourth Dimension OnLine Services
1 Mapperton Close
Canford heath
Poole
DORSET
BH17 8AF

Price\ £6.50

On-Line *News*

New Comms ROM from Spectre

News has just filtered out that Spectre Communications has completed work on a new comms ROM for the Spectrum. Spectre have been well known for their comms ROMs for the Spectrum (both as a replacement for the VTX ROM and in their own Spectrum modems). However, Spectre have not been heard of for some considerable time and indications show that they have been sitting on this enhanced ROM for nearly 12 months and there is still no sign of it being released. No details of the ROM are yet knwon, and we have been unable. More news if and when we hear about it.

Bulletin Board run on a +3

It has long been thought that the VTX5000 modem could not be used to run any practical sort of bulletin board from. However, an enterprising group of Micronetters have successfully modified a VTX so that a standard modem can be fitted to it. Software was then written (along with special routines to control the VTX5000's RS232 port) to allow a complete viewdata bulletin board to be run from a Spectrum +3. The system, called D-Tel, is quite slow but it works and has all the features of commercial services such as Prestel. The opening hours vary, but calling 0325 332117 after about 10pm should ensure you get through to the BBS.

GET IN TOUCH

We already know of many +3UG members who are also Micronet subscribers. However, we know there are more that have not been in touch with us via our on-line Helpline.

So next time your on-line to Micronet send us a mailbox (our MBX number is 582472067) just to let us known that you're there. Those members we know are Micronet subscribers have been sent a Christmas mailbox

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Next Issue

Because of this special Christmas issue, issue 18 of +3 Contact will be launced in mid-February. We hope we have packaed enough material in this issue to keep you sustained over this period. In the meantime though, take a look at what issue 18 will contain:

- *Hardware Special: Reviews of the Mannesman Tally MT81 printer and the Philips PRO 9CM073 monitor,*
- *Part 2 of our series detailing PCG's DTP pack,*
- *Reviews and news of all the latest public domain software,*
- *News of an exciting new addition to our PD Gold range of software,*
- *And much much more!*

Remember: If your subscription is coming to its end then don't forget to resubscribe - withdrawal symptoms from +3 Contact can only be described as 'Cold Turkey'.

The Captain's Log

As you probably will know, we are hoping to have a stand at the All Formats Fair on February 2nd 1991. However, as this has not yet been finalised and the next issue of +3 Contact will not be launced until after the show has taken place, we have been left in a bit of bother about how to notify members if we are going to attend the show. We have decided to send a mailshot to all our members if we are going to have a stand. So if you do not receive anything in the post by February 2nd, then you can assume that we have not been able to get to the show. We are however, very hopefull that we can get everything ready in time.

QUOTE OF THE YEAR
While at a conference on CD-ROM given by Acorn at the Computer Shopper Show, speaker Graham Brown-Martin tickled my, and the rest of the audience's funny bone when he came out with a classic and highly original quote. While commenting about how boring it is to read text off of a monitor screen, he remarked, "If God would have meant us to read text from monitor screens he would have given us all SCART inputs in the back of our heads".

BEST CONTRIBUTOR
This month's best contributor prize of an extra month's membership to the +3UG goes to Paul Wallace, who is a relative new-comer to the +3UG. His article on using the extended memory in the +3 is however worthy of an experienced reviewer in its technical depth. Well done Paul, lets have a few more eh?

CONTRIBUTING ARTICLES
Where have all the contributions gone? Apart from our regular contributors, hardly anyone is sending me any articles. We have to spend an enormous amount of time producing each issue of +3 CONTACT - not including the time we spend writing articles too. For the last couple of issues we have been working totally flat out to get the issues out just because of a lack of contributed articles. This situation may mean that in the future, the quality of +3 Contact will suffer.

The only way I can be 100% certain that this won't happen is if more members send us articles, and the like, so that we may publish them in the magazine. So come everybody, do your bit...its in your own interest after all.

D.G.